AL-FARABI KAZAKH NATIONAL UNIVERSITY
Faculty of Medicine and Healthcare
Higher School of Medicine
Department of Fundamental Medicine

AGREED
Dean of the faculty
Signature
Issayeva R.B
2023

# EDUCATIONAL AND METHODICAL COMPLEX OF DISCIPLINE

# MOLECULAR, CELLULAR AND GENETIC BASIS OF MEDICINE

**BM086 Medicine**
**Educational program "6B10114 Medicine"**

**Course – 1**

**Semester – 2**

**Number of credits – 7 (7 ECTS)**

**Almaty 2023**

Educational and methodical complex of discipline was compiled by Yeszhanova G.A., Kashaganova K.T.

Based on the working curriculum in the educational program 6B10114 Medicine

Considered and recommended at a meeting of the Department of fundamental medicine from "30" 08 2023, protocol № 1

Head of the department _____ Sarsenova L.K.
(signature)

Recommended by the Methodological Council of the Higher School of Medicine

"16" 10 2023 protocol № 1

Chairman of the Academic Committee of M&HF _____ Sarsenova L.K.
(signature)
(колы)

**SYLLABUS**
**Fall semester 2023-2024 academic year**
**Медицинаның молекулалық, жасушалық және генетикалық негіздері /Молекулярно-клеточные и генетические основы медицины / Molecular, Cellular and Genetic Basis of Medicine**

| | | | |
|---|---|---|---|
| **1.** | **ACADEMIC INFORMATION ABOUT THE SUBJECT** | | |
| 1.1 | Faculty/school:<br>Higher School of Medicine | 1.6 | Number of credits (ECTS):<br>General number of credits: 7<br>lectures 3/ practical classes 4 |
| 1.2 | Educational program (EP):<br>6BM10101- Medicine | 1.7 | Prerequisites:<br>From Molecule to Cell |
| 1.3 | Agency and year of EP accreditation<br>IAAR 2021 | 1.8 | Independent work of the student: 2,3 credits |
| 1.4 | Name of subject:<br>Molecular, Cellular and Genetic Basis of Medicine | 1.9 | Independent work of the student under the guidance of a teacher (IWST): 1,17 credits |
| 1.5 | Subject ID: 103507 | 1.10 | Mandatory component: yes |
| **2.** | **Description of subject** | | |
| | The course include main topics of the bioorganic chemistry, molecular and cell biology, necessary for a holistic understanding of principles of the functioning of the human genome, mechanisms of heredity, variability and cell signaling, the molecular genetic foundations of immunity and oncogenesis. Attention is paid to modern methods of molecular genetic research and achievements in the field of molecular biomedicine and nanomedicine. | | |
| **3** | **Purpose of subject** | | |
| - to form an understanding of the molecular basis of the functioning of the cell and the organism as a whole, regulation of gene expression, the chemical structure, properties and functions of biologically active compounds in living organisms, which are necessary for further understanding of both normal processes of life activity and their disruption. Diseases, including hereditary. | | | |
| **4.** | **Learning outcomes (LO) of subject** | | |
| | LO of subject | LO according to the educational program, with which the LO is associated by subject | |
| | Explain the structure, isomerism and nomenclature of biologically active compounds | Apply detailed knowledge of the typical structure and functions of the human body at the level - from molecules, cells, to organs and systems, the body as a whole | |
| | Describe the physico-chemical properties, the biological role of compounds involved in the processes of vital activity | | |
| | Demonstrate knowledge of gene biology and mechanisms for implementing genetic information, protein biosynthesis | | |
| | Apply knowledge of the causes and mechanisms of development of certain changes in the structure and functioning of nucleic acids, especially the expression of genes | | |
| | Understand the molecular-genetic and cellular mechanisms of the body's response to drugs and biologically active compounds | | |
| | Understand the mechanisms of hereditary and variability and their role in the formation of human hereditary pathology and congenital malformations | Identify and solve problems affecting human health based on the application of knowledge about the underlying pathological processes and the biological damage they cause | |
| | Integrate knowledge of the structural and functional characteristics of the genome to solve clinical problems | | |
| | Effectively communicate with other students and teachers regarding medical and scientific information, articulate their opinions clearly when discussing and work effectively as a member of the team | Participate in scientific research aimed at promoting knowledge in the field of human health and improving the quality of life; strive for new knowledge, generate new knowledge; be capable of effective learning and transferring knowledge to others throughout their careers. | |
| | Demonstrate the ability to identify learning gaps and create strategies to enhance one's own knowledge and skills | | |
| **5.** | **Summative assessment methods:** | | |
| 5.1 | MCQ testing | 5.5 | Oral questioning |
| 5.2 | Case study | 5.6 | Colloquium: written survey |

| | | | |
|---|---|---|---|
| 5.3 | Group project | 5.7 | Portfolio of scientific papers- no |
| 5.4 | Mutual evaluation | 5.8 | Exam: Writing form |

| **6.** | **Detailed information about the subject** | | |
|---|---|---|---|
| 6.1 | Academic year: 2023-2024 | 6.3 | Schedule (days of classes, time): according to timetable |
| 6.2 | Semester: 2 | 6.4 | Location (academic building, office, platform and link to the training meeting using DOT): Academic building Tole bi 96 |

| **7.** | **Teacher** | | |
|---|---|---|---|
| Position | Full Name | Contact information (tel., e-mail) | Time for consultations or by appointment |
| Lecturer | Pinskiy I.V.<br>Kashaganova K.T. | ilya.pinskiy@gmail.com<br>kashaganova.kulyash@kaznmu.kz | Before the exam session within 60 minutes |
| PL teacher | Yeszhanova G.A.<br>Tolenova K.D.<br>Imanbay A.K. | yeszhanova.gaukhar@med-kaznu.com<br>tolenova.karakoz@kaznu.kz<br>imanbaya50@gmail.com | Before the exam session within 60 minutes |

| **8.** | **Subject content** | |
|---|---|---|
| Week # | Topics and tasks | Hours |
| 1. | L/ PL: Introduction to molecular biology | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015, p. 175-179, 239-266.<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 113, 209 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Introduction: Fundamentals of the structure and reactivity of organic compounds | 1+2 |
| | Literature for reading:<br>Organic Chemistry an intermediate text Robert V. Hoffman 0-19-509618-5 1997 page 1-5, pages 25-27<br>Organic Chemistry International Student version 10 edition T.W.Graham Solomons Craig B.Fryhle 978-0-470-52459-6 2011 p. 42 - 79, pages 137 -154 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 2. | L/ PL: The human genome structure and its organization | 2+2 |
| | Literature for reading:<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 125, 185-189 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Saturated and unsaturated organic compounds: alkanes, cycloalkanes, alkenes, alkadienes, alkynes | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 54-97 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 3. | L/ PL: Gene expression: Transcription of genetic information and mRNA processing | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 179-193.<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 155-175 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Aromatic compounds | 1+2 |
| | Literature for reading: | |

| | | |
|---|---|---|
| | Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 729-778 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 4. | L/ PL: Gene expression: Translation of genetic information and post-translational modification of proteins | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 301- 333.<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 254-299 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Mono- and polyhydric alcohols, phenols, ethers | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 502-585 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| | **Colloquium 1** | 2 |
| 5. | L/ PL: Regulation of gene expression | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 334- 362.<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 309-337 | |
| | L/ PL: Aldehydes, ketones, carboxylic acids | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 729-778 | |
| | IWS – Project work, discussion of results | 3 |
| 6. | L/ PL: Epigenetics | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 369-392., 429-436<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 268-286 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Heterofunctional compounds | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 790-798 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 7. | L/ PL: Cell signaling | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 813-887<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 559-638 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Heterocyclic compounds | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 790-798 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| | **Colloquium 2** | 2 |
| 8. | L/ PL: Cell signaling | 2+2 |
| | Literature for reading: | |

| | | |
|---|---|---|
| | Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 813-887<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 559-638 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Carbohydrates: monosaccharides | 1+2 |
| | Literature for reading:<br>Morris Hein, Scott Pattison, Susan Arena. Introduction to General, Organic, and Biochemistry [Text]: Book / 10th Edition.-USA: John Wiley&Sons, Inc, 2012.-1091 p | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 9. | L/ PL: Cell differentiation and development of a multicellular organism | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 1297-1342 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Carbohydrates: di-, oligo- and polysaccharides | 1+2 |
| | Literature for reading:<br>Morris Hein, Scott Pattison, Susan Arena. Introduction to General, Organic, and Biochemistry [Text]: Book / 10th Edition.-USA: John Wiley&Sons, Inc, 2012.-1091 p | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 10. | L/ PL: Mutation and DNA repair | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 266-287, 485-491 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Amino acids. Biologically important properties of α-amino acids. Peptides | 1+2 |
| | Literature for reading:<br>Morris Hein, Scott Pattison, Susan Arena. Introduction to General, Organic, and Biochemistry [Text]: Book / 10th Edition.-USA: John Wiley&Sons, Inc, 2012.-1091 p | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| | **Colloquium 3** | 2 |
| 11. | L/ PL: Methods and Techniques in Molecular Biology | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 463-484<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p.129-134 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 4 |
| | L/ PL: Nucleic acids (nucleotides, polynucleotides) and enzymes | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 790-798 | |
| | IWST - consultations on IWS, discussion of results of written works, etc | 3 |
| 12. | L/ PL: Methods and Techniques in Molecular Biology | 2+2 |
| | Literature for reading:<br>Alberts B. et al. Molecular biology of the cell. 6th ed. 2015,p. 463-484 | |

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|---|---|---|
| | Cooper GM. The Cell: A Molecular Approach. 4th ed., p.129-134 | |
| | L/ PL: Lipids | 1+2 |
| | Literature for reading:<br>Morris Hein, Scott Pattison, Susan Arena. Introduction to General, Organic, and Biochemistry [Text]: Book / 10th Edition.-USA: John Wiley&Sons, Inc, 2012.-1091 p | |
| | IWS – Case study, discussion of results | 3 |
| 13. | L/ PL: Gene engineering and recombinant DNA technology | 2+2 |
| | Literature for reading:<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 118-126<br>Weaver, pp. 759-762.<br>Weaver, pp. 765-784. | |
| | L/ PL: Gene engineering and recombinant DNA technology | 4 |
| | L/ PL: Lipids: fatty acids | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 790-798 | |
| | IWST - discussion of results of written works, etc | 3 |
| 14. | L/ PL: Molecular biomedicine | 2+2 |
| | Literature for reading:<br>Cooper GM. The Cell: A Molecular Approach. 4th ed., p. 118-126<br>Weaver, pp. 759-762.<br>Weaver, pp. 765-784. | |
| | IWST - discussion of results of written works, etc | 4 |
| | L/ PL: Solutions of macromolecular compounds | 1+2 |
| | Literature for reading:<br>Organic Chemistry. International student version. 10ed. T.w.Graham Solomons, Craig. B. Fryhle., pp. 790-798 | |
| | IWST - discussion of results of written works, etc | 3 |
| 15. | L/ PL: Nanotechnology in medicine | 2+2 |
| | Literature for reading:<br>https://www.spandidos-publications.com/10.3892/br.2021.1418 | |
| | IWST - discussion of results of written works, etc | 4 |
| | L/ PL: Recap lesson by Bioorganic chemistry | 1+2 |
| | IWST - discussion of results of written works, etc | 3 |
| | **Colloquium 4** | 2 |
| **Sum** | | |
| **9.** | **Teaching methods of the subject:** Lecture; Case based Learning (CBL) - individual, group, integrated, interdisciplinary; project method - individual, group; Team Based Learning (TBL); discussions, conferences, solving typical/situational tasks. | |
| 10. | **Methods of formative assessment:** quiz, test, self-assessment test, reflexive essay, mutual evaluation/reviewing/commenting | |
| 11. | **Summative assessment methods (from point 5):**<br>- solution of situational problems, analysis of cases - within the framework of the current / final control;<br>- interview / oral interview - within the framework of the current;<br>- assessment by direct observation within the framework of current control and IWS;<br>- MCQ, open-type tests - within the framework of the current;<br>- individual project/case - within the framework of the IWS. | |

| **10.** | **Summative assessment** | | | |
|---|---|---|---|---|
| **#** | **Type of educational activity** | **Date** | **Points** | **as a percentage %** |
| **1** | Lecture | According to the schedule | - | Not graded |

| | | | | |
|---|---|---|---|---|
| 2 | Practical class (current control):<br>-writing tasks<br>-oral survey<br>-MCQ testing<br>-solution of situational problems | According to the schedule | 3 points for class - biology<br>3 points for class - chemistry | 6% out of IE1 (100 %) |
| 3 | IWS 1 | According to the schedule, in the 5th week | 8 points | 8% out of IE1 |
| **4** | Colloquium 1 written control | According to the schedule, in the 4th week | Biology – 13 points<br>Chemistry – 12 points | 50% out of IE1 |
| | Colloquium 2 written control | According to the schedule, in the 7th week | Biology – 13 points<br>Chemistry – 12 points | |
| | **IE 1** | | | 100 |
| **5** | Practical class (current control):<br>-writing tasks<br>-oral survey<br>-MCQ testing<br>-solution of situational problems | According to the schedule | 3 points for class - biology<br>3 points for class - chemistry | 6% out of IE2 (100 %) |
| **6** | IWS 2 | According to the schedule, in the 12th week | 6 points | 8% out of IE2 |
| **7** | Colloquium 3 written control | According to the schedule, in the 10th week | Biology – 10 points<br>Chemistry – 10 points | 46% out of IE2 |
| | Colloquium 4 written control | According to the schedule, in the 15th week | Biology – 14 points<br>Chemistry – 12 points | |
| | **IE 2** | | | 100 |
| **8** | Final exam: Written control | According to the session schedule | 100 points:<br>Biology- 60 points<br>Chemistry– 40 points | 40 % of the final score |

| **10.** | **Assessment** | | |
|---|---|---|---|
| **Rating by letter system** | **Digital equivalent of points** | **Percentage Digital equivalent of points Percentage** | **Description of the assessment** (changes should be made only at the level of the decision of the Academic Quality Committee of the faculty) |
| A | 4,0 | 95-100 | **Excellent.** Exceeds the highest task standards. |
| A- | 3,67 | 90-94 | **Excellent.** Meets the highest standards of the assignment. |
| B+ | 3,33 | 85-89 | **Good.** Very good. Meets the high standards of the assignment. |
| B | 3,0 | 80-84 | **Good.** Meets most of the job standards. |
| B- | 2,67 | 75-79 | **Good.** More than enough. Shows some reasonable ownership of the material. |
| C+ | 2,33 | 70-74 | **Good.** Acceptable.<br>Meets the basic standards of the task. |
| C | 2,0 | 65-69 | **Satisfactory.** Acceptable. Meets some basic job standards. |
| C- | 1,67 | 60-64 | **Satisfactory.** Acceptable. Meets some basic job standards. |
| D+ | 1,33 | 55-59 | **Satisfactory.**<br>Minimally acceptable. |
| D | 1,0 | 50-54 | **Satisfactory.**<br>Minimally acceptable. The lowest level of knowledge and completion of the task. |

| | | | |
|---|---|---|---|
| FX | 0,5 | 25-49 | **Unsatisfactory.**<br>Minimally acceptable. |
| F | 0 | 0-24 | **Unsatisfactory.**<br>Very low productivity. |
| **11.** | **Educational resources** *(use the full link and specify where you can access the texts/materials)* | | |
| Literature | | | Basic:<br>1. Alberts B. et al. Molecular biology of the cell. 6th ed. 2015. Garland Science.<br>2. Geoffrey M. Cooper, et al. The cell: A molecular approach. 8th ed. 2018. Oxford University Press.<br>3. Lodish H. et al. Molecular cell biology. 8th ed. 2016. WH Freeman.<br>4. John McMurry, et al. Fundamentals of General, Organic, and Biological Chemistry, 8th Edition. 2018. Pearson Education Limited.<br>5. Soderberg T. Organic Chemistry with a Biological Emphasis. 2016. Chemistry Publications. |
| | | | Additional:<br>1. Jenis, J. Study Guide and Practice Tests for Organic Chemistry (Organic Compounds of Aliphatic Series) / Al-Farabi KazNU. Almaty: Qazaq university, 2017.<br>2. Russell P.J. iGenetics. A molecular approach. 3rd ed. 2009. Pearson.<br>3. Karp G. Cell and molecular biology. Concepts and experiments. 7th ed. 2013. Wiley.<br>4. Hartwell L. et al. Genetics. From genes to genomes. 4th ed. 2011. McGraw Hill.<br>5. Zhussupova A.I. Molecular Biology (Interdisciplinary Approaches in Teaching and Research) / Al-Farabi KazNU. Almaty: Qazaq university, 2016.<br>6. Zhussupova A.I. Modern issues in molecular diagnostics / Al-Farabi. Kazakh National University – Almaty: Qazaq university, 2015. |
| Electronic resources (including, but not limited to: electronic library catalog, databases of scientific literature, databases, animation, modeling, professional blogs, websites, other electronic reference materials (for example, video, audio, digests) | | | 1. Lecturio.com https://www.lecturio.com<br>2. “Human Genome” Project https://web.ornl.gov/sci/techresources/Human_Genome/project/info.shtml<br>3. NCBI - The National Center for Biotechnology Information, USA https://www.ncbi.nlm.nih.gov/<br>4. NDB - a portal for three-dimensional structural information about nucleic acids http://ndbserver.rutgers.edu/<br>5. OMIM - compendium of human genes and genetic phenotypes https://www.ncbi.nlm.nih.gov/omim?db=OMIM<br>6. Ensembl - Genome browser for vertebrate genomes http://asia.ensembl.org/index.html<br>7. EMBL-EBI - European Bioinformatics Institute https://www.ebi.ac.uk/<br>Video lectures by Molecular Biology: https://www.khanacademy.org/ |

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|---|---|
| Laboratory physical resources | - |
| Special software | - |

**12. Teacher's expectations from students**

The student

- attends all classes and lectures
- actively participates in classroom classes during formative assessment, in group work,
- performs tasks on time
- shows respect for teachers, university staff and students
- carefully handles university property (models, desks, chairs, etc.)
- observes cleanliness and order on campus and classrooms
- uses gadgets in classes only with the teacher's permission
- for all issues within the discipline is addressed to the teacher of this discipline, for general academic issues – to his advisor

correspondence is carried out only through a messenger approved by the teacher, at the time regulated by the teacher

**13. Discipline Policy**

The discipline policy is determined by the **Academic Policy** and the Policy of Academic Integrity of Al-Farabi Kazakh National University .
If the links will not open, then you can find the relevant documents in the Univer IC.

The student is obliged to:
- attend classes in a white coat
- wear gloves when working with models

…
The student must follow the Code of Professional Conduct of Higher School of Medicine

The behavior of the student at the exams is regulated by the "Rules for the final control", "Instructions for the final control of the autumn / spring semester of the current academic year" (current documents are uploaded to the IS "Univer" and updated before the start of the session); "Regulations on checking text documents of students for the presence of borrowings".

**14. Principles of inclusive learning**

**1. Constantly preparing for classes:**
For example, supports statements with appropriate links, makes short summaries
Demonstrates effective learning skills, helps in teaching others
**2. Take responsibility for your training:**
For example, manages your training plan, actively tries to improve, critically evaluates information resources
**3. Actively participate in the group's training:**
For example, actively participates in the discussion, willingly takes assignments
**4. Demonstrate effective group skills**
For example, he takes the initiative, shows respect and correctness towards others, helps to resolve misunderstandings and conflicts
**5. Skillful communication skills with peers:**
For example, he listens actively, is receptive to nonverbal and emotional signals
Respectful attitude
**6. Highly developed professional skills:**
Strives to complete tasks, looking for opportunities for more training, confident and qualified
Compliance with ethics and deontology in relation to patients and medical staff
Insubordination.
**7. High introspection:**
For example, he recognizes the limitations of his knowledge or abilities, without becoming defensive or reproaching others
**8. Highly developed critical thinking:**
For example, accordingly demonstrates skills in performing key tasks, such as generating hypotheses, applying knowledge to cases from practice, critically evaluating information, making conclusions aloud, explaining the process of reflection
**9. Fully complies with the rules of academic behavior with understanding, offers improvements in order to increase efficiency.**
Observes the ethics of communication – both oral and written (in chats and appeals)
**10. Fully complies with the rules with full understanding of them, encourages other members of the group to adhere to the rules**
Strictly adheres to the principles of medical ethics and PRIMUM NON NOCER

| 15. | Distance/Online learning |
|---|---|
| Distance/online learning is implemented at the University in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated March 20, 2015 No. 137 "On approval of requirements for educational organizations to provide distance learning and rules for organizing the educational process for distance learning and in the form of online learning for educational programs of higher and (or) postgraduate education"; according to the Rules of the organization of training with the use of DOT at the University; Instructions for the final control of the autumn/spring semester of the current academic year (the current document is in the IS "Univer"); "Regulations on checking text documents of students for the presence of borrowings". | |

| 16. | Approval and review | |
|---|---|---|
| Head of the Department | | Sarsenova L.K. |
| Academic Committee of M&HC | Protocol No. 1 | Date of approval 1 |
| Chairman of the Academic Committee of M&HC | | Sarsenova L.K. |

**RUBRICATOR FOR ASSESSING LEARNING OUTCOMES**
**With summative assessment**

**Oral/ written response scale**

| Mark | Criteria | Scale, points |
|---|---|---|
| Excellent | 1. all key aspects are included and presented logically;<br>2. high accuracy (relevance, without redundancy) and constant attention to the issue;<br>3. excellent integration of theoretical questions;<br>4. providing relevant examples;<br>5. in-depth analysis and theoretical justification of the problem (if applicable), all key aspects identified and interpreted;<br>6. fluency in professional terminology | 90 - 100 |
| Good | 1. all key aspects are included and presented logically;<br>2. constant focus on the issue with satisfactory accuracy, relevance, and / or some redundancy;<br>3. satisfactory integration of theoretical questions;<br>4. the lack of examples;<br>5. satisfactory analysis and theoretical justification of the problem (if applicable), most of the key aspects identified and interpreted;<br>6. correct use of professional terminology | 70 - 89 |
| Satisfactory | 1. most of the key aspects are included;<br>2. satisfactory focus on the question - some errors and / or noticeable redundancy;<br>3. theoretical problems presented without noticeable integration;<br>4. Providing failed examples or no examples;<br>5. some analysis and theoretical justification of this problem (if applicable), most of the key aspects are defined and interpreted;<br>6. correct use of professional terminology | 50 - 69 |
| Unsatisfactory (FX) | 1. most of the key aspects are omitted;<br>2. lack of attention to the issue-irrelevant and significant redundancy;<br>3. some theoretical problems presented without integration and understanding;<br>4. missing or outdated examples;<br>5. some analysis and theoretical justification of this problem (if applicable), most of the key aspects are omitted;<br>6. problems in using professional terminology | 25 - 49 |
| Unsatisfactory (F | 1. most or all of the key aspects are omitted;<br>2. no focus on the question, not much related to the issue of information; | 0-24 |

| | | |
|---|---|---|
| | 3. significant gaps in theoretical questions, or their superficial consideration;<br><br>4. the lack of examples or irrelevant examples;<br><br>5. there is no analysis and no theoretical justification for the given problem (if applicable), most of the key aspects are omitted;<br><br>6. problems in using professional terminology | |

**Group work checklist**

Group tasks and assignments mean that grades are given to the whole group based on the results of the work of the whole group. Everyone should be interested in ensuring the effective contribution of all members of the group and ensuring the high quality of the assignment. Sometimes, to assess the relative contribution of each to the group process, a form of peer-to-peer or peer review and a team assessment form will be used. This can be used to moderate assignment grades, or simply as a way to give feedback on your work in a group. The following are examples of student assessment criteria for team training.

| **№** | **Student assessment criteria in practical classes** |
|---|---|
| 1 | *Preparation for classes:*<br><br>He studies information focused on the case and problematic issues, uses various sources, and supports the statements with relevant links. |
| 2 | *Group skills and professional attitude:*<br><br>Demonstrates excellent attendance, reliability, responsibility Takes the initiative, takes an active part in the discussion, helps the teammates, willingly takes on tasks |
| 3 | *Communication skills:*<br><br>Actively listens, shows emotions according to the situation, is susceptible to non-verbal and emotional signals, shows respect and correctness in relation to others, helps to resolve misunderstandings and conflicts |
| 4 | *Feedback Skills:*<br><br>Demonstrates a high level of introspection, critically evaluates oneself and colleagues, provides constructive and objective feedback in a friendly manner, accepts feedback without opposition |
| 5 | *Skills of critical thinking and effective learning:*<br><br>Effectively participates in generating hypotheses and formulating problematic questions, gives relevant examples from life, skillfully applies knowledge to the problem / case under consideration, critically evaluates information, draws conclusions, explains and substantiates statements, draws diagrams and drawings, demonstrates a constant interest in the material being studied |
| 6 | *Theoretical knowledge and skills on the topic of the lesson:*<br><br>All key aspects are presented logically; accuracy, relevance of answers to the questions posed without redundancy; integration of theoretical issues; Use of relevant examples proper use of professional terminology |

**Checklist for self-assessment of team effectiveness**

| You | I personally | Group as a whole | Comments |
|---|---|---|---|
| Effectively clarify your tasks and tasks at each stage? | | | |
| Evaluate the progress of work? | | | |
| We clarify and document everything that the group decided? | | | |
| We clarify who will do what and how? | | | |
| We clarify by what date each task should be done? | | | |
| Setting meeting management rules? | | | |
| Adhere to agreed rules? | | | |
| Listening to each other? | | | |
| Allow some team members to dominate? | | | |
| Allow some team members to refuse / withdraw? | | | |
| We sacrifice personal desires for the success of the team? | | | |
| Recognize the feelings of other team members? | | | |
| Making equal contributions to team progress? | | | |
| Adhere to agreed rules for writing and naming files? | | | |